



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

52

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/468,614	12/21/1999	ALOK SINHA	042390.P7752	3838

7590 03/09/2005

ALOYSIUS T C AUYEUNG  
BLAKELY SOKOLOFF TAYLOR & ZAFMAN LLP  
12400 WILSHIRE BOULEVARD 7TH FLOOR  
LOS ANGELES, CA 90025

EXAMINER
----------

CAO, DIEM K

ART UNIT	PAPER NUMBER
----------	--------------

2126

DATE MAILED: 03/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/468,614

Applicant(s)

SINHA ET AL.

Examiner

Diem K Cao

Art Unit

2126

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 04 January 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-10 and 13-28 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10, 13 and 15-28 is/are rejected.
- 7) ☒ Claim(s) 14 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

1. Claims 1-10 and 13-28 are pending.
2. In view of the Appeal Brief filed on 1/4/2005, PROSECUTION IS HEREBY REOPENED. A new ground of rejection is set forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

- (1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,
- (2) request reinstatement of the appeal.

If reinstatement of the appeal is requested, such request must be accompanied by a supplemental appeal brief, but no new amendments, affidavits (37 CFR 1.130, 1.131 or 1.132) or other evidence are permitted. See 37 CFR 1.193(b)(2).

***Specification***

3. The disclosure is objected to because it contains an embedded hyperlink and/or other form of browser-executable code (page 2, line 18, page 6, lines 15-17). Applicant is required to delete the embedded hyperlink and/or other form of browser-executable code. See MPEP § 608.01.

Appropriate correction is required.

*Allowable Subject Matter*

4. Claim 14 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

*Claim Rejections - 35 USC § 103*

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 10, 13, 15-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hinckley (U.S. 5,828,882) in view of Devireddy et al. (U.S. 2002/0133669 A1).

7. **As to claim 10**, Hinckley teaches (col. 4, lines 39-56) registering (registration request 102) the application (program 104) with a programming interface (event notification facility 100 includes a program interface 102), detecting occurrence of a hardware event (event, variety type of events) with a monitor service (event detection hardware/software) that is separate from the programming interface (see Fig. 1), notifying the management application of the event via the event application programming interface (event manager perform ... of the program). Hinckley also suggests the system can be utilized with a variety of operating systems, events and programs (an event notification ... and programs; col. 6, lines 29-41).

Art Unit: 2126

8. However, Hinckley does not teach an operating system module to interface with a device, and the monitor service operates above the operating system module. Devireddy teaches an operating system module to interface with a device (High capacity storage device ... such as RAID; page 2, right column, lines 17-33), and the monitor service operates above the operating system module (a storage device ... stand alone application; page 2, section 0018 and Management functions ... voltage probes; page 3, left column; lines 1-8).

9. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of Hinckley and Devireddy because it provides alternative method (utilizing software application) to monitor events in the computer system.

10. **As to claim 13**, Hinckley as modified teaches storing data identifying the hardware event (Each entry of the event table 200 corresponds to a type of event 110; col. 4, lines 60-65).

11. **As to claim 15**, Hinckley does not teach notifying the programming interface of the occurrence of the hardware event with a RAID monitor service. Devireddy teaches notifying programming interface of the occurrence of the hardware event with a RAID monitor service (a storage device ... stand alone application; page 2, section 0018 and Management functions ... voltage probes; page 3, left column, lines 1-8).

12. **As to claim 16**, Hinckley teaches notifying the application includes providing a callback function (handler routine; col. 4, lines 51-56).

Art Unit: 2126

13. Claims 1-7, 9, 17, and 19-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hinckley (U.S. 5,828,882) in view of Devireddy et al. (U.S. 2002/0133669 A1) further in view of Admitted Prior Art (APA).

14. As to claim 22, Hinckley teaches (col. 4, lines 39-56) a processor (an operating system), a medium for storing instructions (inherent from computer system contains program and event notification facility), wherein instructions on the medium for storing instructions define a monitor service (event notification facility) adapted to cause the processor to detect via a module the occurrence of an event (event, variety type of events, event detection hardware/software) and to indicate the occurrence of the event to a management application (event manager perform ... of the program).

15. However, Hinckley does not teach a medium for storing data, a module to interface with an I/O processor that monitors the medium for storing data, and event with the medium for storing data. Devireddy teaches a medium for storing data (High capacity storage devices; page 2, right column, lines 27-28), a module that monitor the medium for storing data (SCSI controller ... such as RAID; page 2, right, lines 27-33, a storage device configuration manager; page 2, right column, section 0018), and event with the medium for storing data (storage related events and enclosure management; page 3, left column, lines 1-8). APA teaches I/O processor is included in the RAID system (page 2, lines 13-14)

Art Unit: 2126

16. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of Hinckley, Devireddy and APA because it provides alternative method (utilizing software application) to monitor events in the computer system.

17. **As to claim 23**, Hinckley teaches there are multiple management applications (col. 3, lines 19-35), and also suggests the system can be utilized with a variety of operating systems, events and programs (col. 6, lines 29-41). However, Hinckley does not teach the management application is selected from the group consisting of a desktop management program, a RAID system management application, and a RAID monitor application. Devireddy teaches a RAID monitor application. It is obvious there are many programs to monitor the RAID system and any one of them could work with the system of Hinckley.

18. **As to claim 24**, Hinckley does not teach a RAID device and the monitor service comprises a RAID monitor service. Devireddy teaches a RAID device (RAID; page 2, right column, lines 27-30) and the monitor service comprises a RAID monitor service (page 2, section 0018).

19. **As to claim 25**, Hinckley does not teach an intelligent input/output controller to interface with the RAID device, and the intelligent input/output controller comprises the I/O processor. APA teaches an intelligent input/output controller to interface with the RAID device, and the intelligent input/output controller comprises the I/O processor (page 2, lines 13-16).

Art Unit: 2126

20. **As to claim 1**, Hinckley teaches (col. 4, lines 39-56) registering (registration request 102) the management application (program 104) with an event application programming interface (event notification facility 100 includes a program interface 102), detecting occurrence of an event (event detection hardware and/or software), notifying the management application of the event via the event application programming interface (event manager perform ... of the program). Hinckley also suggests the system can be utilized with a variety of operating systems, events and programs (col. 6, lines 29-41).

21. However, Hinckley does not teach an operating system module to interface with a RAID device controller that comprises an I/O processor, detecting occurrence of an event of the I/O processor with a RAID monitor service operating above the operating system module. Devireddy teaches an operating system module to interface with a RAID device controller (a processor, high capacity storage device ... bus 160; page 2, right column, lines 1-33), detecting occurrence of an event (monitoring the health ... voltage probes; page 3, left column, lines 1-8) with a RAID monitor service operating above the operating system module (a storage device ... stand alone application; page 2, section 0018). APA teaches a RAID device controller that comprises an I/O processor (page 2, lines 13-14).

22. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of Hinckley, Devireddy and APA because it would provide the user the options to check and correct the RAID system events utilizing an existing event management facility.



23. **As to claim 2**, Hinckley as modified teaches (col. 4, lines 39-56) updating the event application programming interface (When an event 110 occurs, ... to an event manager 118) with the RAID monitor service upon occurrence of the event (event interface 116 connected to event detection hardware and/of software).

24. **As to claim 3**, Hinckley does not explicitly teach registering includes identifying a storage medium associated with the event. Hinckley teaches event type is registered with the event notification facility (col. 4, lines 39-56). It would have been obvious to modify the system of Hinckley to identify the storage medium associated with the event when the system is utilized to monitor the RAID device because it provides the method to fix the failed storage medium.

25. **As to claim 4**, Hinckley as modified teaches registering the management application includes identifying the type of event (Each entry of an event table ... type of event 110; col. 4, lines 39-56).

26. **As to claim 5**, Hinckley as modified teaches registering the management application includes providing the event application programming interface with a callback function (handler routine; col. 4, line 39 – col. 5, line 17).

27. **As to claim 6**, Hinckley as modified teaches (col. 4, lines 39-56) the event application programming interface (event manager 118) use the callback function to (handler routine 108)

Art Unit: 2126

notify the management application (program 104) of the occurrence of the event (event 110 occurs).

28. **As to claim 7**, Hinckley as modified teaches creating an interprocess communication between the RAID monitor service and the management application (event detected by the monitor service is notified to the management application; col. 4, lines 39-67).

29. **As to claim 9**, Hinckley as modified teaches (col. 4, lines 39-56) the event application programming interface (event notification facility 100, event manager 118) returns (performs a procedure call) a callback function (handler routine 108) upon notification of the event (when an event 110 occurs).

30. **As to claim 17**, see rejection of claim 1 above.

31. **As to claim 19**, Hinckley does not explicitly teach a hardware event. Devireddy teaches a hardware event (monitoring the health of the storage subsystem ... voltage probes; page 3, left column, lines 1-8).

32. **As to claim 20**, Hinckley does not explicitly teach the hardware event is selected from the group consisting of a disk drive failure, disk drive initialization, array migration, and data recovery. Devireddy teaches the hardware event related to storage subsystem (page 3, left column, lines 1-8). It would have been obvious to one of ordinary skill in the art the disk driver

Art Unit: 2126

failure, disk drive initialization, array migration and data recovery are monitor in the system of Devireddy.

33. **As to claim 21**, refer to claim 12 above for rejection.

34. **As to claim 26**, it is rejected under the same ground of claim 1.

35. **As to claim 27**, Hinckley teaches (col. 4, lines 39-56) registering (registration request 102) the management application (program 104) with an event application programming interface (event notification facility 100 includes a program interface 102).

36. **As to claim 28**, Hinckley teaches (col. 4, line 39 – col. 5, line 40) instructions that cause the processor to provide the function of the event programming interface (The event notification ... connected to event detection hardware and/or software).

37. Claims 8 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hinckley (U.S. 5,828,882) in view of Devireddy et al. (US 2002/0133669 A1) and Admitted Prior Art (APA) further in view of Skarbo et al. (U.S. 5,805,886).

38. **As to claims 8 and 18**, Hinckley does not explicitly teach unregistering the management application with the event application programming interface. Skarbo teaches (col. 7, lines 40-45) unregistering (unregister) the management application (communication application) with the

Art Unit: 2126

event application programming interface (address book). It would have been obvious to one of the ordinary skill in the art to apply the teaching of Skarbo to the system of Hinckley because it would provide the management application a way to unregister itself when it doesn't interesting in event notification.

### *Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Diem K Cao whose telephone number is (571) 272-3760. The examiner can normally be reached on Monday - Friday, 8:00AM - 3:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai An can be reached on (571) 272-3756. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

**Any response to this action should be mailed to:**

Commissioner for Patents  
PO Box 1450  
Alexandria, VA 22313-1450

Diem Cao

  
MENG-AI AN  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2100